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CIBA-GEIGY CORPORATION  
CRANSTON, RHODE ISLAND

REC'D 6-19-87

Prepared for

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## 1.0 SUMMARY OF VSI ACTIVITIES

On Friday, May 8, 1987 Dennis Giustra, chemical engineer for Versar Inc., traveled to Cranston, Rhode Island, in order to conduct a visual site inspection (VSI) of the Ciba-Geigy chemical manufacturing plant. The VSI was performed in conjunction with U.S. EPA Region I, Rhode Island Department of Environmental Management (RIDEM), and Ciba-Geigy. On site during the VSI were Frank Battaglia, EPA primary contact; Steve Majkut, RIDEM Division of Air and Hazardous Materials; James Crowley and Bill Goff, Ciba-Geigy Corporation; and Dominick Tutela, consultant for the City of Cranston.

The purpose of the VSI was to fill in any information gaps remaining after the preliminary review (PR) of the facility (Versar Inc., 1987) and to provide specific guidance in developing a sampling visit (SV) work plan. During the VSI, which lasted approximately 3 1/2 hours (from 11:30 a.m. to 3:00 p.m.), all process and SWMU areas were inspected and evaluated for release potential. Optimum sampling locations were identified, and information necessary to effectively conduct any future sampling on site was obtained.

Ambient air monitoring for possible organic vapors was conducted by Versar during the VSI using a Photovac TIP (total ionizables present) photoionization unit. Instantaneous readings were taken at various locations onsite in order to detect the presence of photoionizable constituents in ambient air. No detectable readings above background were recorded during the VSI for all measurements taken at the breathing zone. Several significant readings, however, were recorded for subsurface locations throughout the facility which were accessed by an underground surface drainage sewer, 1 1/4-inch diameter piezometers (Photo 1), and former wastewater piping. These locations and the levels detected are shown in Figure 1. All readings from these locations were taken prior to any venting of the subsurface opening (except for the wastewater pipes which were not covered) and are only an indication of the possible presence of organic vapors above background levels.

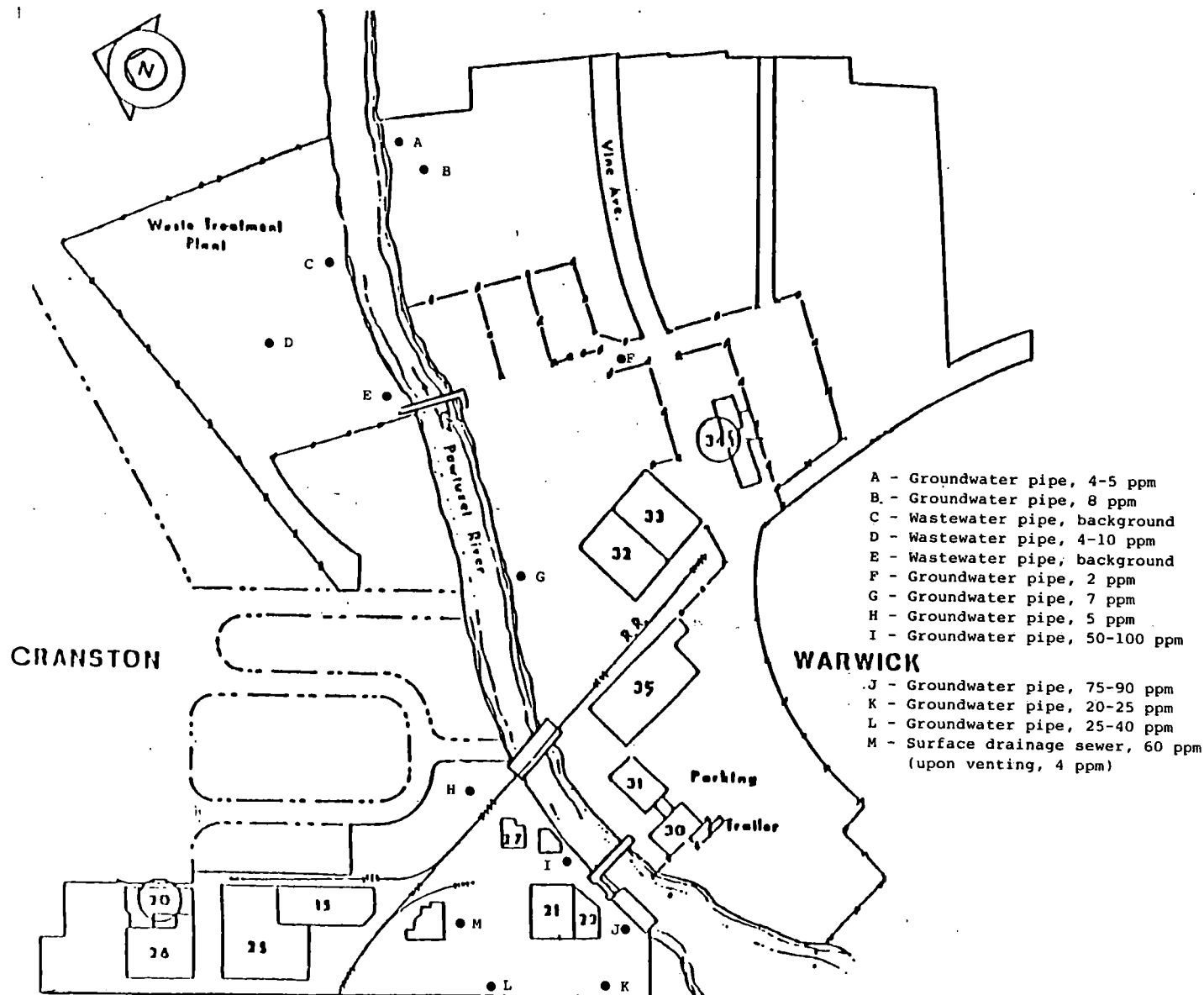


FIGURE 1  
TIP PHOTOIONIZATION READINGS TAKEN DURING VISUAL SITE INSPECTION OF  
CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND.  
(Ciba-Geigy, 1985b)

Photographs of the Ciba-Geigy facility and all SWMU locations were also taken during the visual site inspection (see Attachment A) in order to document site conditions. Visual evidence of releases from the facility was not readily apparent at locations around the plant. At the time of the VSI, it was evident that demolition of the facility was well under way (Photos 2 and 3) and that process operations had ceased.

## 2.0 SITE OBSERVATIONS

During the VSI, all SWMUs previously identified by Ciba-Geigy were located and examined (Figure 2). Updated information for each unit will be presented in this section. No additional SWMUs were identified but other areas of concern were examined.

Major process buildings and facilities that have been demolished and no longer exist onsite include building 10, steam plant; building 11, manufacturing; building 14, office; building 10/23, pilot plant; building 17/19, manufacturing; building 24, zinc recovery system; building 27, cooling tower; and the wastewater treatment plant. The demolition and removal of building 21/22 (manufacturing) had not yet been completed (Photo 2). No removal activities were being performed on the Warwick side of the facility, which was primarily being used for the temporary storage of equipment from the former production buildings (Photo 4).

All storage tanks from the building 21 tank farm (Photo 5) and over-the-river tank farm (Photo 6) had been removed. Some debris had been placed within the containment structures of these tank farms. Standing surface water within the tank farms had accumulated as a result of drainage being sealed off by Ciba-Geigy. The main tank farm which previously contained SWMU 2 and SWMU 3 still housed a few other tanks (Photo 7). The means of drainage within the main tank farm had also been sealed off, and standing surface water had accumulated.

The former location of Ciba-Geigy's underground bulk solvent and raw material storage tanks was found northwest of the production area adjacent to residential property in Cranston (Photo 8). Eight 10,000-gallon storage tanks previously used to store toluene, acetone, isopropyl alcohol, and other solvents had been removed from this area. Soils around the tanks had been excavated, and the entire area was backfilled with a sandy material. The location of one underground gasoline tank and two underground fuel oil tanks was also found during

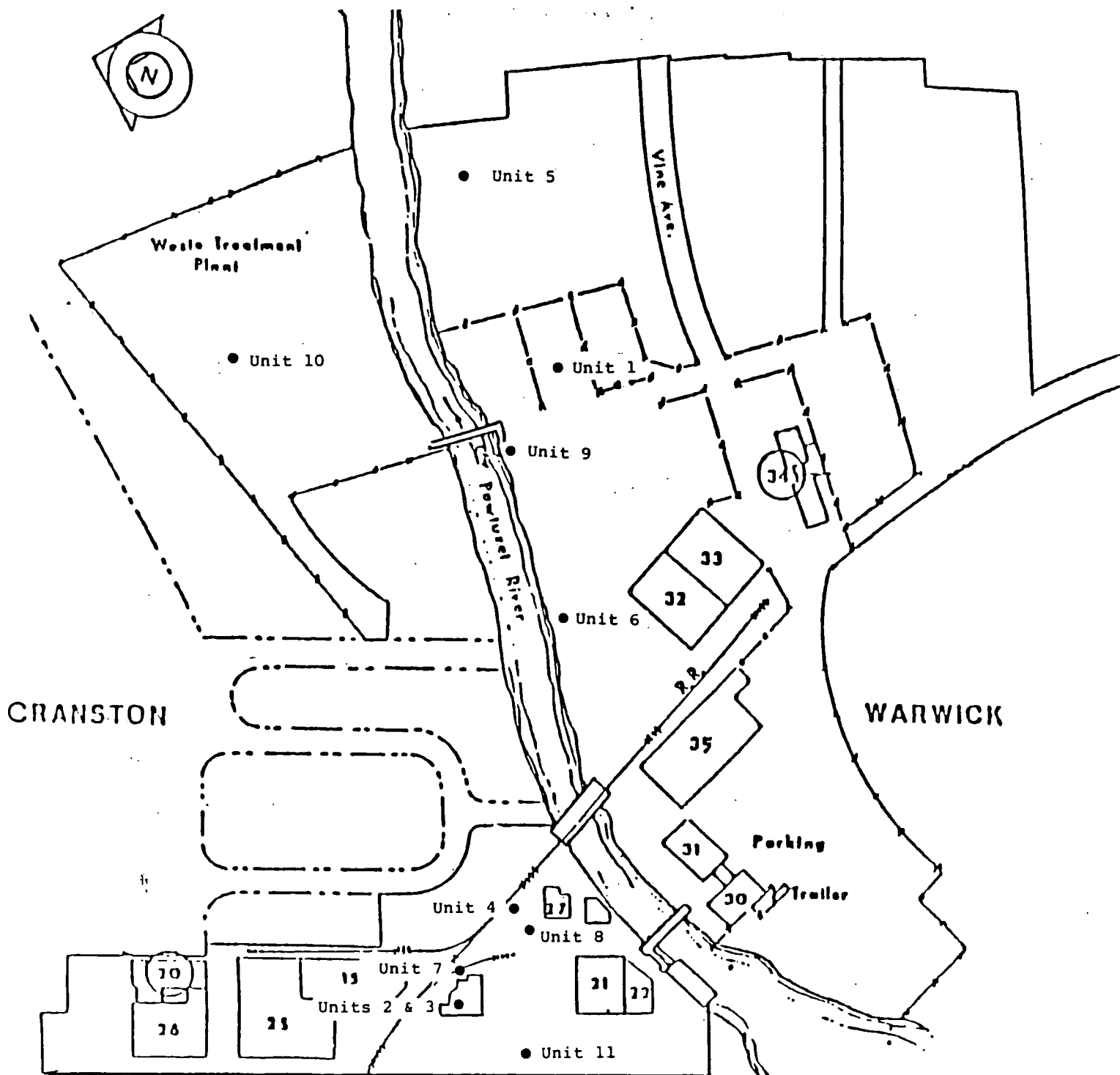


FIGURE 2  
 SOLID WASTE MANAGEMENT UNITS  
 CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND  
 (CIBA-GEIGY, 1985)

the VSI. It still needs to be determined if releases from either the underground bulk solvent storage tanks or fuel tanks fall within the authority of the RCRA corrective action program. If releases from these tanks are identified during the RFA, guidance from EPA Region I will be obtained for further action.

No specific information was made available during the VSI regarding the status and location of all underground pipelines, sumps, and sewer lines throughout the production area and the rest of the facility. EPA Region I plans to request this information from Ciba-Geigy.

The Pawtuxet River was examined while crossing the three bridges that connect the Cranston and Warwick sides of the facility. The river maintained a steady flow, which suggested that surface discharges or releases to the river were quickly taken downstream. No seeps along the river banks or discharges from previous facility outfalls were evident.

The Atlantic Tubing and Rubber Company property adjacent to Ciba-Geigy along Mill Street was not formally inspected, but most of the land is underdeveloped except near the river. Currently, a small chemical supplier operates out of the facility located here. No past or current releases from this property have been identified.

## 2.1 Updated SWMU Information

### 2.1.1 SWMU 1 - Hazardous Waste Storage Area (Drums)

SWMU 1 is located on the Warwick side of the Ciba-Geigy facility in the northeast corner of the fenced property. It is an asphalt-lined area (42 feet wide by 58 feet long) enclosed by a 12-inch-high, 8-inch-wide concrete block containment wall. A solid metal gate with rubber gasketing was wedged into place at the entrance to the storage area during facility operations (Photo 9). The gate was lifted in and out of place by a forklift to permit access. Surface drainage from the concrete-paved area outside of SWMU 1 is via outfall 004 to the Pawtuxet River. Accumulated rainfall or precipitation within the SWMU was regularly pumped during plant operations to the facility's wastewater treatment plant.



At the time of the VSI, all drums had been removed from the area. The SWMU had been cleaned, and no evidence of any releases was apparent. The potential of exposure to any wastes previously managed in this SWMU is negligible. Prior to the construction and use of SWMU 1, hazardous waste drums were stored in the production area near the trash compactor.

#### 2.1.2 SWMU 2 - 6,000-Gallon Hazardous Waste Storage Tank

SWMU 2 is located in the main tank farm near the Mill Street entrance to the Ciba-Geigy facility. The tank was located in a concrete-diked enclosure (Photo 10). During the VSI, this area contained the tank's storage pad and standing surface water. Drainage from the enclosure had previously occurred by way of underground piping to the wastewater treatment plant. This drainage pathway was sealed off according to the hazardous waste storage permit, and subsequently water had to be pumped out of the enclosed area.

No evidence of releases was apparent in or around this SWMU. Subsurface infiltration is a likely pollutant migration pathway from this SWMU. A release to the ground water in the former building 11 area (SWMU 11) near the main tank farm has been identified (Ciba-Geigy, 1985a). Air monitoring of subsurface openings in the former production area downgradient of the main tank farm has revealed the possible presence of organic vapors above background levels. The potential of exposure to releases from the storage tank in the subsurface could not be determined.

#### 2.1.3 SWMU 3 - 7,500-Gallon, 90-Day Accumulation Tank

The 90-day accumulation tank was located in the same tank farm as SWMU 2 and was enclosed (along with three other tanks) by concrete containment walls. No reported releases from this SWMU have been documented, and no evidence of release was found in or around the unit during the VSI. The subsurface is a likely pollutant migration pathway from this SWMU, as in the case of SWMU 2. Releases to the subsurface have been identified near the main tank farm as documented from SWMU 11

and possibly from organic vapor readings recorded from subsurface openings downgradient of the main tank farm. The potential for exposure to releases from the storage tank in the subsurface could not be determined.

#### 2.1.4 SWMU 4 - Trash Compactor

The trash compactor was formerly located north of building 27 adjacent to the railroad tracks, and it sat on a concrete base. The entire area surrounding this SWMU was covered with either concrete or asphalt. Drainage from the trash compactor flowed to a nearby surface drain leading to the facility's waste treatment plant. Few remnants of the SWMU exist at its former location (Photo 11). No process wastes were reportedly placed into the compactor (Ciba-Geigy, 1985a), and no releases have been documented from this unit. The potential of exposure to any possible releases from the SWMU is negligible.

#### 2.1.5 SWMU 5 - Former Silt Pile

The location of the former silt pile on the Warwick side of the facility was examined during the VSI. Most of the area, situated in the northeast corner of the Warwick property near the river, was overgrown with vegetation (mostly grasses). Some bare areas within the SWMU location did exist (Photo 12). The total area previously covered by the silt pile could not be determined. Two ground water level measurement pipes were found near the former silt pile.

The silt pile was placed onsite after being dredged from the Pawtuxet River upstream of the Ciba-Geigy facility. No information exists regarding any waste characteristics of the pile. During the VSI, surface soils within the SWMU area were distributed and monitored with the TIP photoionization unit. Readings were 1 - 6 ppm above background levels, which may indicate residual contamination.

For a number of years, the pile at its former location was allowed to dewater. Migration pathways from the SWMU include surface runoff and

subsurface infiltration. Although the pile was removed and soils in the area excavated, residual contamination may exist. The potential of exposure to contaminants in the surface soils exists, since access to the area is unrestricted. The potential of exposure to contaminants in the subsurface could not be determined.

#### 2.1.6 SWMU 6 - Zinc Oxide Pile

A major part of the zinc oxide pile still exists on site. The pile is located on the Warwick side of the facility, north of building 32 and adjacent to the guardrail that supported the main wastewater pipeline along the Pawtuxet River (Photo 13). The pile is approximately 7 feet wide by 50 feet long, and 2 feet high (26 cubic yards), and it consists of soil and lumps of zinc oxide. Surface runoff from the area discharges to the river by way of outfall 003. The presence of zinc oxide is evident in the pile, but releases from this unit and the potential of exposure are not major concerns because of the innocuous nature of the material.

#### 2.1.7 SWMU 7 - Chlorosulfonic Acid Area

The chlorosulfonic acid spill occurred within the area bordered by the railroad spur adjacent to the main tank farm (Photo 14). Most if not all of the area covered by the spill was reportedly neutralized and excavated for the new tank farm foundations (Ciba-Geigy, 1985a). Evidence of release has not been documented, since the area is presently covered by the tank farm. Similarly, contaminant migration and exposure potentials have not been determined.

#### 2.1.8 SWMU 8 - Potassium Ferrocyanide Spill Area

During the VSI, a former area of blue-stained soil was located. The area resulted from a spill of an unknown quantity of potassium ferrocyanide (Prussian blue), and it was excavated by Ciba-Geigy around 1961 (Ciba-Geigy, 1985a). Facility representatives indicated that the Prussian blue was only found in the one area located between building 27

and former building 24 (Photo 15). Evidence of release has not been documented, since this area has been paved. Similarly, contaminant migration and exposure potential have not been documented.

#### 2.1.9 SWMU 9 - Wastewater Pipeline Break (January 12, 1982)

SWMU 9 was found on the southern side of the facility at the point where the pipeline turned to cross the bridge to the wastewater treatment plant (Photo 16). The entire pipeline has been removed. The guardrail that supported the pipeline remains in place, revealing the former layout of the wastewater line. The area surrounding the point of the pipeline break revealed no evidence of past release. Apparently, all of the wastewater that was discharged during the break flowed to the river. No information regarding any residual contamination in the area exists. Potential contaminant migration is via surface runoff to the river. Potential exposure pathways include contact with contaminated soils or the river.

#### 2.1.10 SWMU 10 - Wastewater Pipeline Break (September 7, 1987)

The general location of SWMU 10 was found at the former wastewater treatment plant site (Photos 17 and 18). The SWMU was identified as a result of a rupture in an underground line feeding two of the three equalization tanks (Ciba-Geigy, 1983). All structures and facilities at the treatment plant have been removed. Soils have been excavated, backfilled, and graded. The area surrounding the point of the pipeline rupture and the drainage pathway from the SWMU to the river revealed no evidence of past release.

Cavitation of the soils around the ruptured pipeline allowed the discharge to flow to the ground surface where it was diverted to the facility's 001 outfall (Photo 19). Outfall 001 was a diffusion type outfall located on the bottom of the river used primarily for the discharge of pretreated effluent from the treatment plant. No information regarding any residual contamination in the area of the pipeline break exists. Contaminant migration is potentially via surface

runoff to the river or through the subsurface to the ground water. Potential exposure pathways include contact with the river or contaminated soils.

#### 2.1.11 SWMU 11 - Building 11 Area

Building 11 was razed in October 1983. Analyses of groundwater samples in the vicinity of the building 11 sump at the time of demolition indicated a low-level presence of toluene (Ciba-Geigy, 1985a). The sump was located underground, had a capacity of 300 gallons, and was constructed of concrete. The sump operated as an overflow wier and contained a constant amount of water, which was normally pumped to the treatment plant. The area of the former building 11 is now paved (Photo 20).

Potential contaminant migration from the SWMU is through the subsurface to the ground water. Evidence of release may be documented by collecting groundwater samples adjacent to and downgradient of the SWMU within the former production area. The potential of exposure to contaminants from this SWMU would most likely be associated with use of the Pawtuxet River, since ground water in the area contributes to the flow of the river.

### 3.0 INFORMATION GAPS

The most significant information gaps that remain after the completion of the preliminary review and visual site inspection include analytical data pertaining to releases from the facility. This information relates to releases that have been previously identified by Ciba-Geigy, as well as past or current releases that have not been identified or documented. The preliminary review and visual site inspection have been used to focus the sampling visit by providing guidance on where to collect environmental samples from particular areas of the site in order to identify any other potential or actual releases.

One important information gap regarding processes at the facility is the status and location of all underground pipelines, sumps, and sewer lines. This information has been requested from Ciba-Geigy by EPA Region I and will serve to develop a complete picture of the facility and possibly identify point sources of contamination.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

##### 4.1 Units Requiring No Further Action

As a result of the preliminary review and visual site inspection of the Ciba-Geigy facility and guidance obtained from EPA Region I, the following solid waste management units require no further action under the RCRA corrective action program:

- SWMU 1 - Hazardous Waste Storage Areas (Drums)
- SWMU 4 - Trash Compactor
- SWMU 6 - Zinc Oxide Pile

##### 4.2 Sampling Visit Guidance

Solid waste management units for which additional field information needs to be collected during the sampling visit at Ciba-Geigy include the following:

- SWMU 2 - 6,000-Gallon Hazardous Waste Storage Tank
- SWMU 3 - 7,500-Gallon 90-Day Accumulation Tank
- SWMU 5 - Former Silt Pile

In addition to these locations other areas from which samples need to be collected include the Pawtuxet River and ground water underlying the site. These samples will be used to identify releases and to assess contaminant migration pathways. Other SWMUs where releases have been identified do not require further investigation during the sampling visit, but they are subject to further action under the RCRA correction action program.

##### 4.3 Units Requiring Further Corrective Action

The solid waste managements units at which releases have been identified by Ciba-Geigy and that require further investigation beyond the scope of the RCRA are as follows:

- SWMU 7 - Chlorosulfonic Acid Spill Area
- SWMU 8 - Potassium Ferrocyanide Spill Area
- SWMU 9 - Wastewater Pipeline Break (January 12, 1982)
- SWMU 10 - Wastewater Pipeline Break (September 7, 1983)
- SWMU 11 - Building 11 Area (Toluene)

Since no analytical data is available regarding releases from these units that have already been identified by Ciba-Geigy, it is the facility's responsibility to determine the status and extent of contamination within these SWMUs during a RCRA Facility Investigation (RFI). Depending upon the analytical results received from the sampling visit, other areas of the site may need to be included in the scope of this investigation. Final RFA recommendations for each SWMU and area of concern at Ciba-Geigy will be presented in the draft Final RFA Report to be submitted one month after the receipt of sampling visit analytical results.



#### REFERENCES

- Ciba-Geigy. 1983. Letter from James E. Crowley, Safety, Health and Environment Manager, to Edward K. McSweeney, Chief, Permit Branch, U.S. EPA, Boston, Massachusetts, regarding request under Section 308 of the Clean Water Act for information concerning pipe break. October 7, 1983.
- Ciba-Geigy. 1985. Letter from James E. Crowley, Safety, Health and Environment Manager, to Merrill S. Hohman, Director, Waste Management Division, U.S. EPA, Boston, Massachusetts. Request for information pursuant to Section 3000 RCRA, 42 USC Section 6927 and Section 104 of CERCLA 1980, 42 USC Section 9604. July 22, 1985.
- Ciba-Geigy. 1985a. Letter from James E. Crowley, Safety, Health and Environment Manager, to Merrill S. Hohman, Director, Waste Management Division, U.S. EPA, Boston, Massachusetts. Request for information pursuant to Section 3000 RCRA, 42 USC Section 6927 and Section 104 of CERCLA 1980, 42 USC Section 9604. October 21, 1985.
- Ciba-Geigy. 1985b. Completed RCRA Part B Application for the storage of hazardous waste at Ciba-Geigy Corporation plant at 180 Mill Street, Cranston, Rhode Island. Submitted to Julie Miller, Engineer, Division of Air and Hazardous Materials, RIDEM. January 11, 1985.
- Versar Inc. 1987. Preliminary RFA Report. RCRA Facility Assessment, Ciba-Geigy Corporation, Cranston, Rhode Island. EPA Contract No. 68-01-7331. May 4, 1987.

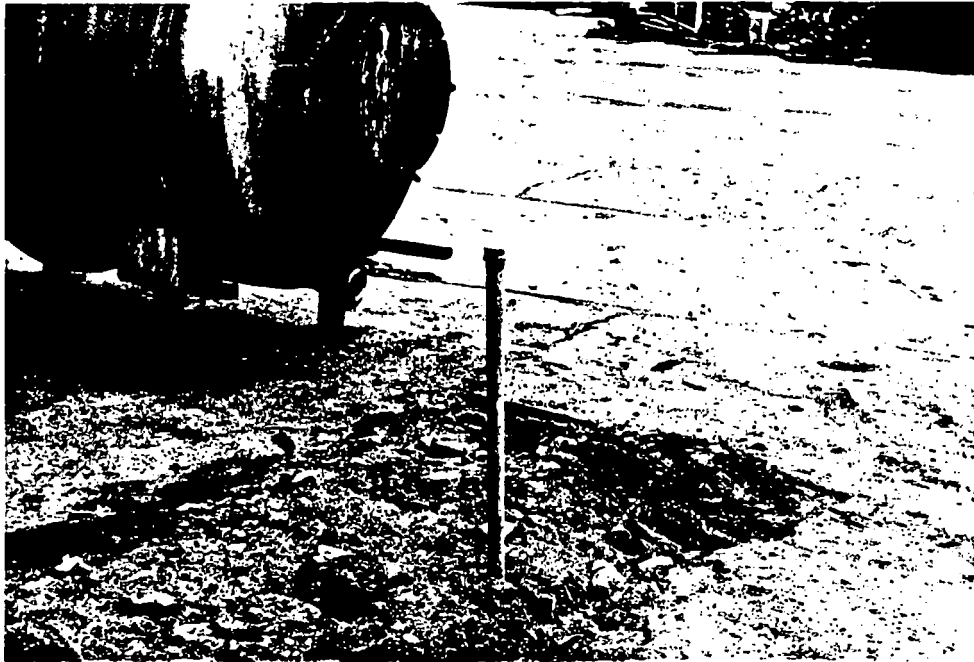


PHOTO 1

SUBJECT: PIPE RECENTLY INSTALLED TO MEASURE GROUND WATER LEVELS.  
SEVERAL SIMILAR PIPES EXIST THROUGHOUT THE FACILITY.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987

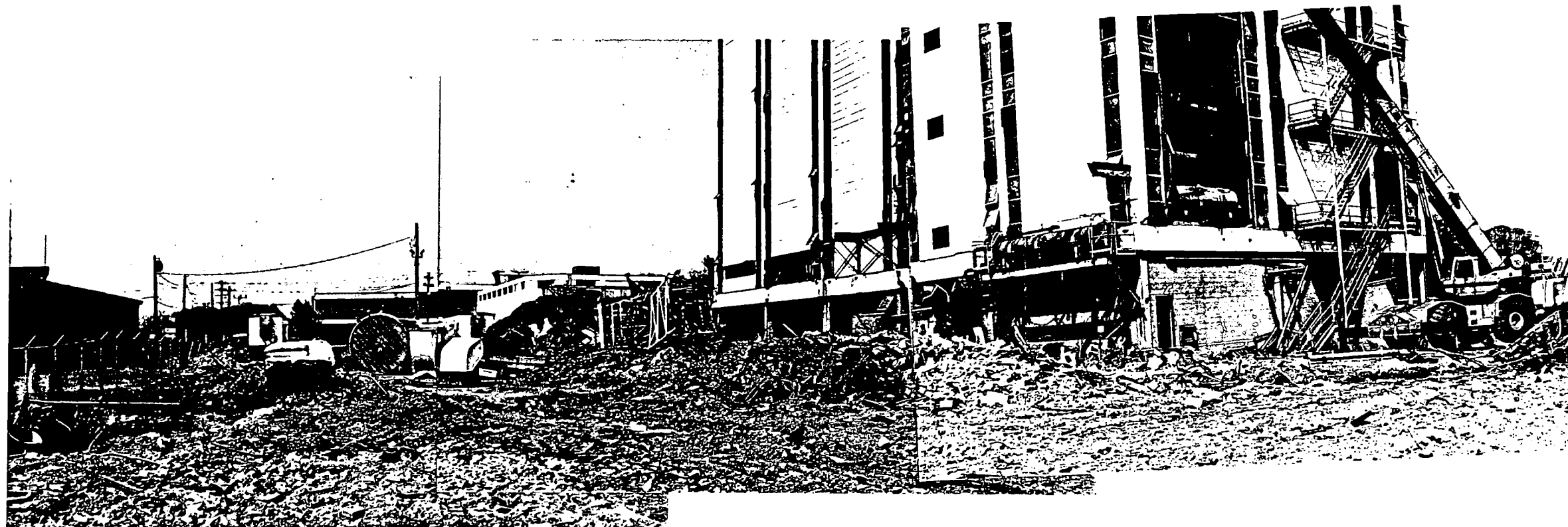


PHOTO 2

SUBJECT: DEMOLITION ACTIVITIES AROUND BUILDING 21/22 IN SOUTHWEST CORNER OF THE SITE  
LOOKING NORTHEAST.

LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND

DATE: MAY 8, 1987

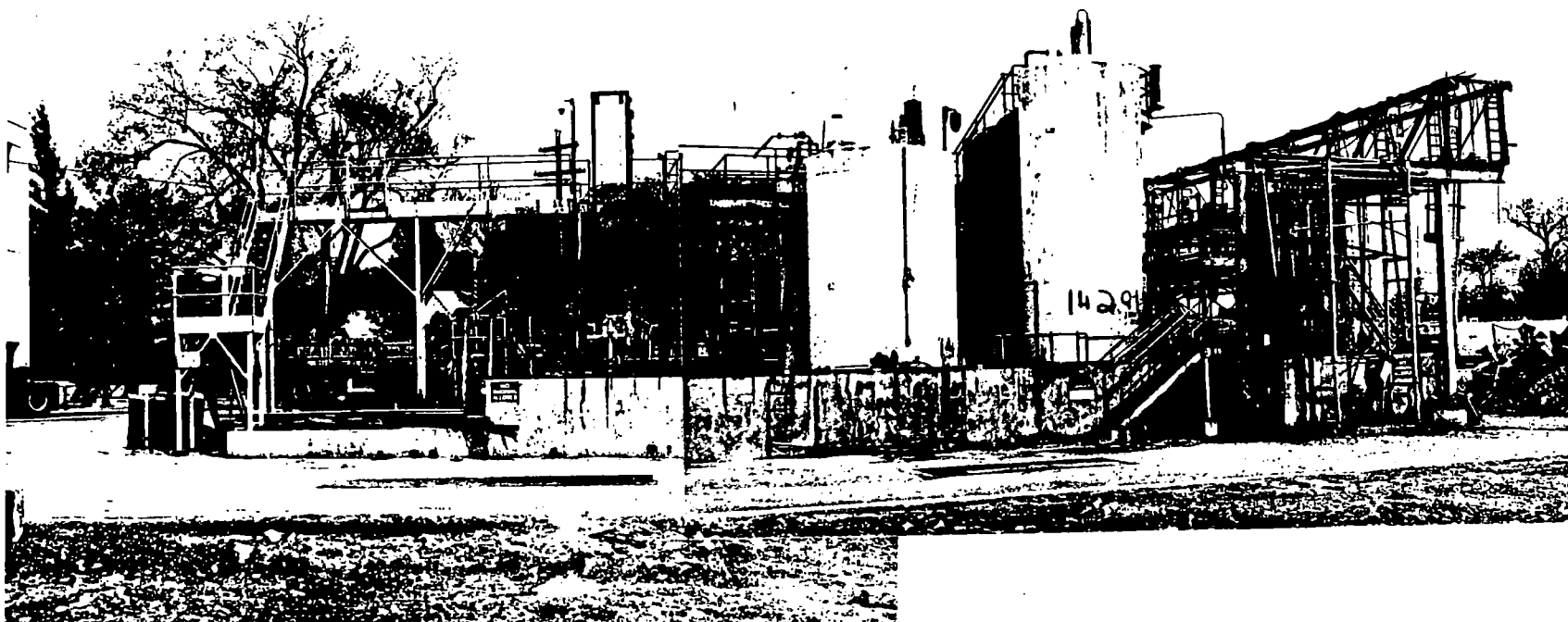


PHOTO 3

SUBJECT: MAIN TANK FARM WHICH CONTAINED SWMU2 AND SWUM 3 LOOKING EAST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 4

SUBJECT: FORMER OUTSIDE DRUM STORAGE AREA PRESENTLY OCCUPIED BY EQUIPMENT FROM  
DISMANTLED PLANT LOOKING EAST.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 3, 1987

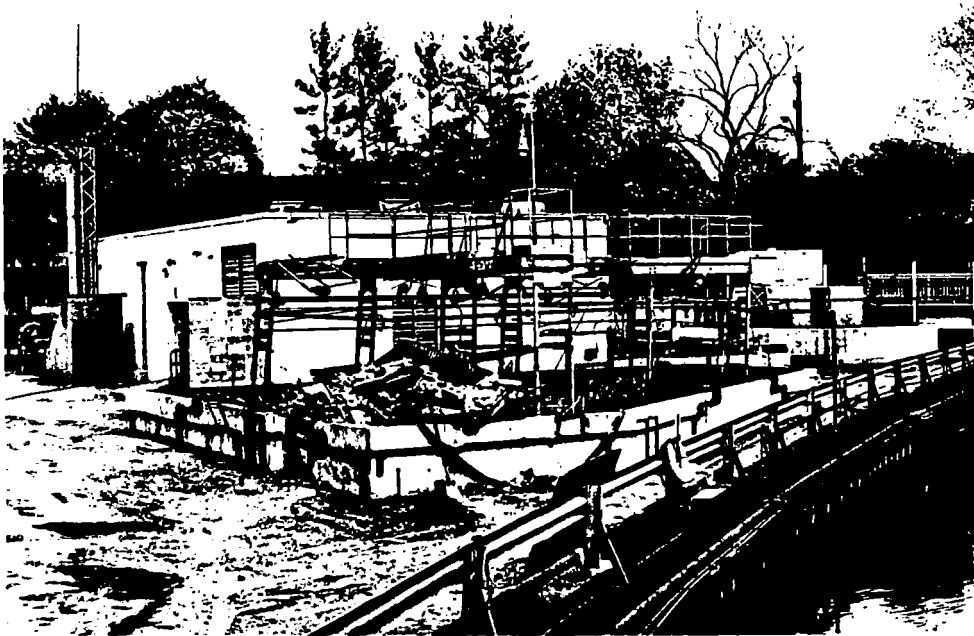


PHOTO 5

SUBJECT: BUILDING 21 TANK FARM LOCATION LOOKING NORTHEAST.  
TANKS HAVE BEEN REMOVED AND CONTAINMENT AREA FILLED WITH SOME DEBRIS.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 6

SUBJECT: OVER-THE-RIVER TANK FARM LOOKING WEST. TANKS HAVE BEEN REMOVED  
AND CONTAINMENT AREA FILLED WITH SOME DEBRIS.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 7

SUBJECT: MAIN TANK FARM AND DEMOLITION DEBRIS FROM BUILDING 10,  
STREAM PLANT LOOKING NORTHEAST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



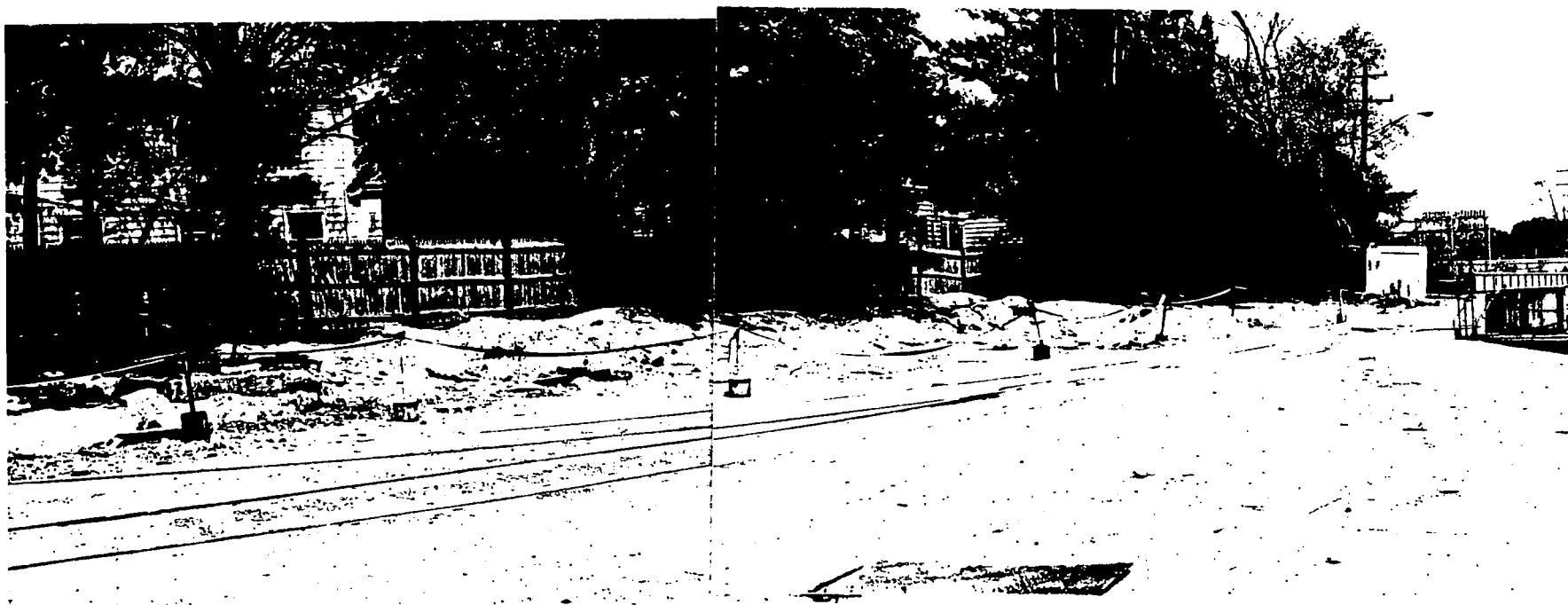


PHOTO 8

SUBJECT: FORMER LOCATIONS OF EIGHT 10,000-GALLON UNDERGROUND STORAGE TANKS USED BY  
CIBA-GEIGY FOR RAW MATERIAL STORAGE, LOOKING EAST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 9

SUBJECT: CONTAINMENT AREA AND LOCATION OF SWMU 1,  
HAZARDOUS WASTE STORAGE AREA (DRUMS) LOOKING NORTHEAST.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987

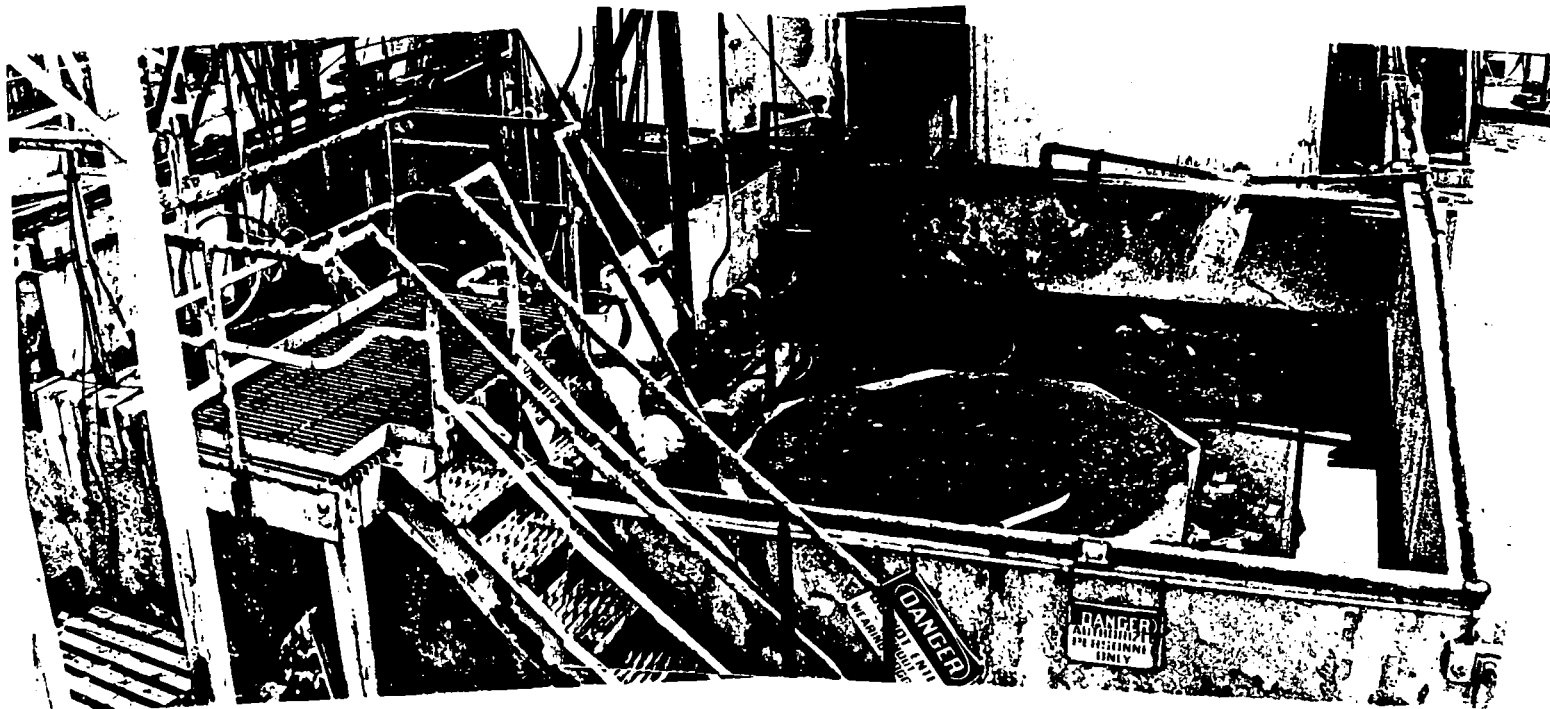


PHOTO 10

SUBJECT: CONTAINMENT AREA AND STORAGE PADS FOR SWMU 2, 6,000-GALLON HAZARDOUS WASTE  
STORAGE TANKS (right), 7,500-GALLON 90-DAY ACCUMULATES TANK (left).  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 11

SUBJECT: FORMER LOCATION OF SWMU 4, TRASH COMPACTOR, LOOKING NORTHWEST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 12

SUBJECT: LOCATION OF SWMU 5, FORMER SILT PILE, ON WARWICK PROPERTY EAST OF THE PLANT. .  
THE PILE WHICH WAS DREDGED FROM THE PAWTUXET RIVER UPSTREAM OF THE FACILITY  
WAS REMOVED IN DECEMBER 1976.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987

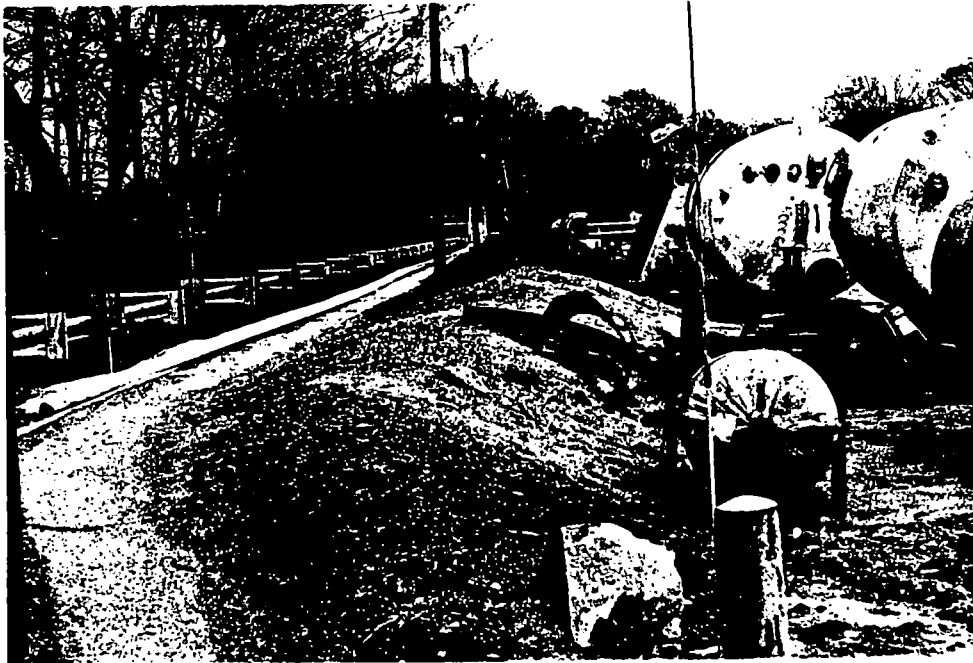


PHOTO 13

SUBJECT: LOCATION OF SWMU 6, ZINC OXIDE PILE LOCKING EAST.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987

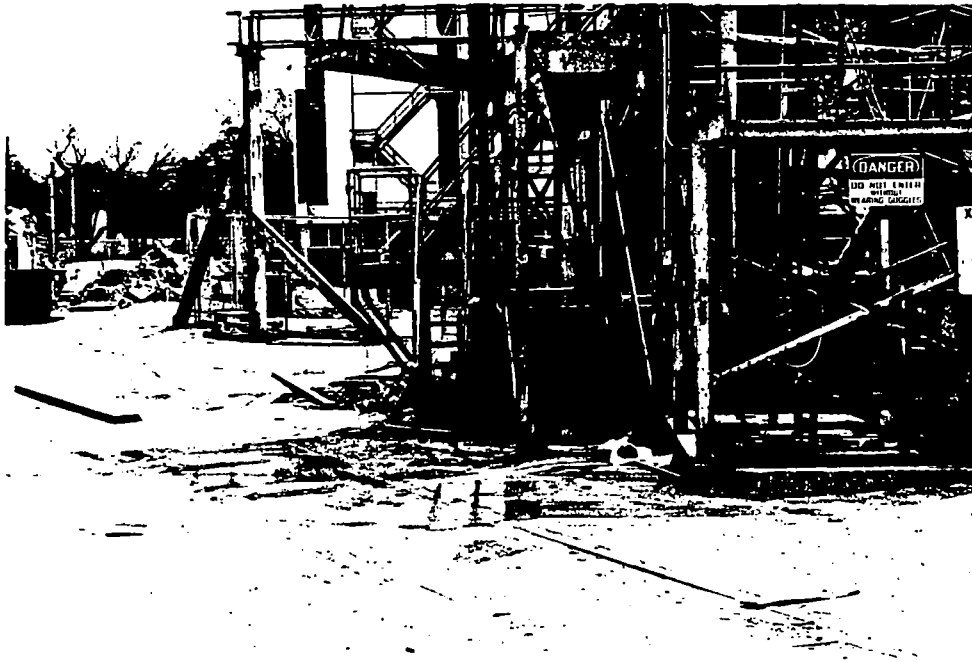


PHOTO 14

SUBJECT: LOCATION OF SWMU 7, CHLOROSULFONIC ACID SPILL, IN AREA BETWEEN RAILROAD TRACKS AND TANK FARM LOOKING SOUTH. PART OF THE TANK FARM COVE S THE FORMER SPILL AREA.

LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND

DATE: MAY 8, 1987



PHOTO 15

SUBJECT: LOCATION OF SWMU 8, POTASSIUM FERROCYANIDE SPILL AREA LOOKING SOUTH. SPILL  
WAS DETECTED DURING EXCAVATION PRIOR TO PAVING THE AREA.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 3, 1987





PHOTO 16

SUBJECT: LOCATION OF SWMU 9, WASTEWATER PIPELINE BREAK (JANUARY 12, 1982)  
LOOKING NORTHEAST. PIPELINE HAS BEEN REMOVED BUT CARRIED WASTEWATER  
ACROSS BRIDGE TO TREATMENT PLANT.  
LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND  
DATE: MAY 8, 1987

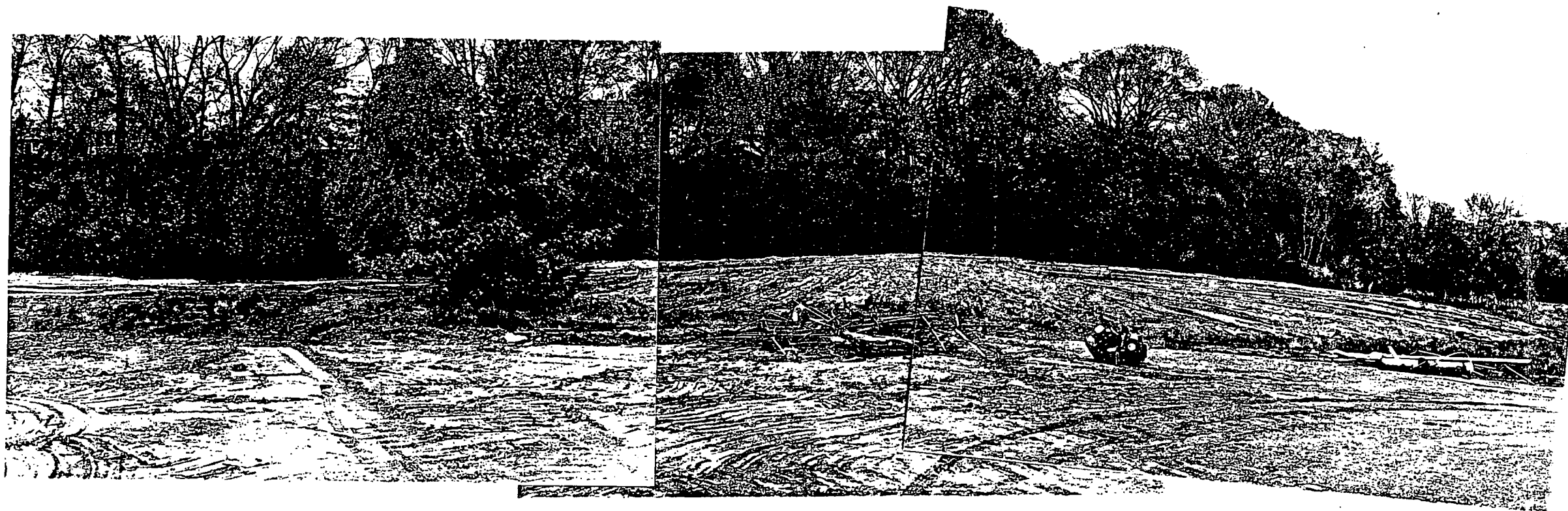


PHOTO 17

SUBJECT: LOCATION OF SWMU 10, WASTEWATER PIPELINE BREAK (SEPTEMBER 7, 1983) AND THIRD  
EQUALIZATION TANK LOOKING NORTH. PIPELINE BREAK OCCURRED JUST WEST OF  
THE TANK.

LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND

DATE: MAY 8, 1987



PHOTO 18

SUBJECT: FORMER LOCATION OF WASTEWATER TREATMENT PLANT LOOKING NORTHEAST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 19

SUBJECT: FORMER LOCATION OF CLARIFIER AT THE FACILITY'S WASTEWATER TREATMENT PLANT,  
LOOKING SOUTH TOWARD THE RIVER.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987



PHOTO 20

SUBJECT: LOCATION OF SWMU 11, BUILDING 11 AREA LOOKING SOUTH. THE BUILDING HAS BEEN  
RAZED AND THE AREA PAVED.

LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND

DATE: MAY 8, 1987



PHOTO 21

SUBJECT: FORMER LOCATION (FOREGROUND) OF TRICKLING FILTER AT THE FACILITY'S WASTEWATER  
TREATMENT PLANT LOOKING WEST.  
LOCATION: CIBA-GEIGY, CRANSTON, RHODE ISLAND  
DATE: MAY 8, 1987

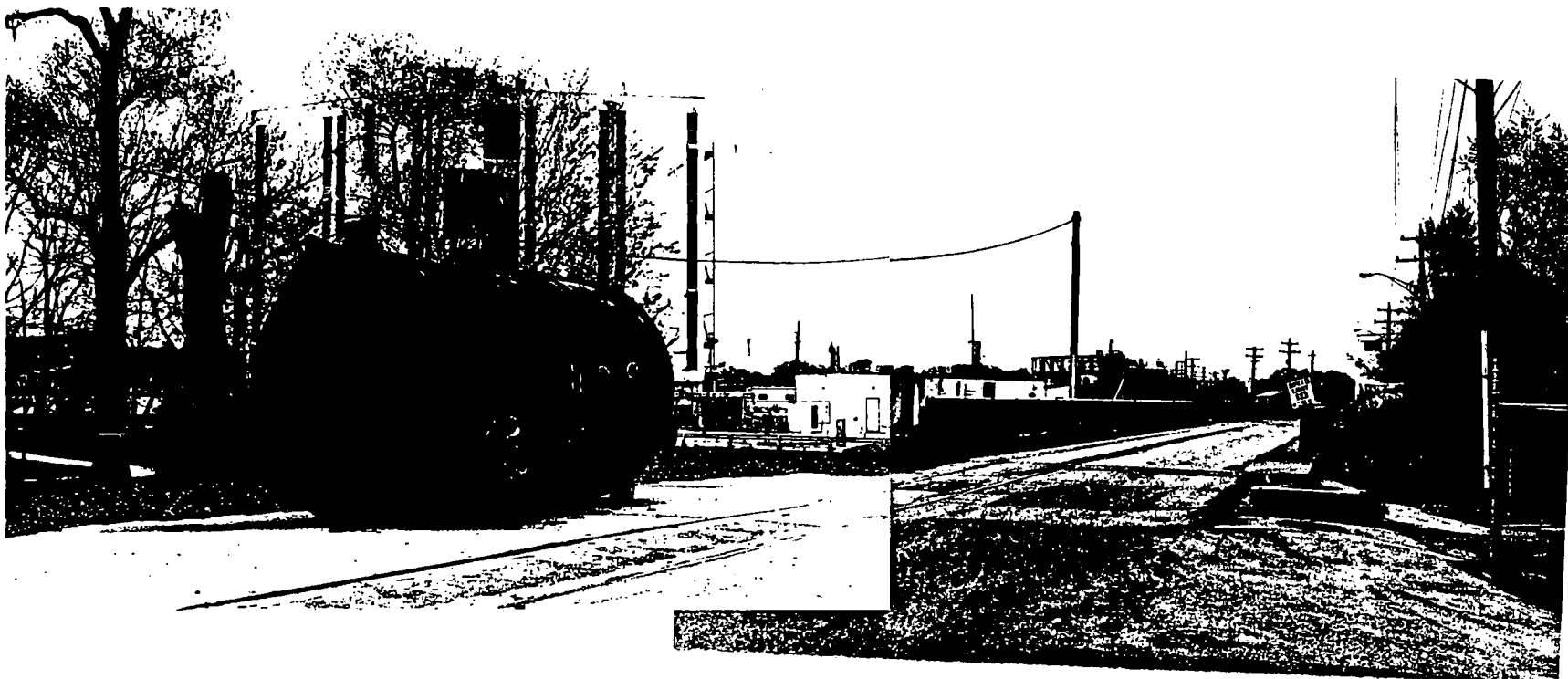


PHOTO 22

SUBJECT: VIEW OF CIBA-GEIGY FROM WARWICK SIDE OF PLANT LOOKING WEST. TANK IN FOREGROUND IS A FORMER UNDERGROUND STORAGE TANK.

LOCATION: CIBA-GEIGY, WARWICK, RHODE ISLAND

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